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VISTEON
C/O BRINKS HOFER GILSON & LIONE
PO BOX 10395
CHICAGO, IL 60610

EXAMINER	
CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
2685	

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,854	WHIKEHART ET AL.	
	Examiner	Art Unit	
	Charles Chow	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-30* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/28/2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4 & 5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2, 13-16, 22, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon et al. (US 5,291,516) in view of Nakamura et al. (US 2002/0136,278 A1).

Regarding **claim 1**, Dixon et al. (Dixon) teaches a narrow band and spread spectrum communication system (the dual mode cordless phone for narrow band or spread spectrum cellular, microcellular operation in col. 1, lines 9-14; col. 4, lines 38-56; including the narrow band FM radio signal), for a vehicle comprising a signal processing circuit (the range and mobility, for mobile vehicle communication in col. 4, lines 38-56; the signal processing circuit tunable bandpass filter 117, preamplifier 203, frequency converter 209, tunable frequency synthesizer 105, mode select switch 104 in Fig. 2) and an antenna system (dual band antenna 109) connected to the signal processing circuit (117 tunable bandpass filter), the antenna system operable to receive a narrow band signal and an input spread spectrum signal (the dual mode receiver having antenna 109 in Fig. 2, the mode switch 104 to select the incoming narrow band signal and spread spectrum signal, for processed by narrow band demodulator 213 and spread spectrum demodulator 217 in col. 5, line 49 to col. 6, line 11, col. 2, lines 47-68), the signal processing circuit (received information processing 219, the narrow band demodulator 213, the spread spectrum despread 215, spread spectrum

demodulator 217 in Fig. 2) is operable to generate an output communication signal in response to at least one of the narrow band signal (information processor 219 for providing output communication information signal for the received narrow band incoming signal in col. 7, line 46 to col. 8, line 2) and operable to generate an output communication signal in response to the the input spread spectrum signal (the information processor 219 utilizing digital to analog conversion to provide demodulated communication signal for the received spread spectrum signal).

Dixon fails to teach the signal processing circuit is operable to generating a spectrum-like signal in response to the narrow band signal, the output communication signal in response to at least one of the spread spectrum-like signal. However, Nakamura et al. (Nakamura) teaches the signal processing circuit (re-spreader 204, Fig. 1; to create interference replica, [0080]) is operable to generating a spectrum-like signal in response to the narrow band signal (the spreading received user data and control data with spreading code Cdp-dch, Cdppcch in [0086], for canceling, subtracting, interference [0001, abstract]; the 204 to re-spread received signal, to generate spectrum-like signal in Fig. 16D, to reduce the interference from other users 2-3 for narrow band user 1's signal of the narrow band modulated signal NM, based on the ratio of the chip-period of spreading code T/Tc, to reduce the noise floor in Fig. 16A-16D, [0013]), the output communication signal in response to at least one of the spread spectrum-like signal (the receive demodulator 400 in Fig. 3, for decoding the user data of the spectrum-like signal, utilizing demodulator 400 in [0090]). Nakamura teaches the improved efficient method for reducing interference signal by shortening the delay time in the interference canceller with accuracy [0034-0037]. Therefore, it would have been obvious to

one of ordinary skill in the art at the time of invention to modify Dixon with Nakamura's re-spreading with minimum spreading factor such that receiver could reduce the interference accurately.

Regarding **claim 2**, Dixson teaches the antenna system comprises a multimode antenna (the dual mode antenna 109 for both narrow band signal and spread spectrum signal).

Regarding **claim 13**, Dixon teaches a narrow band and spread spectrum communication system (the dual mode cordless phone for narrow band or spread spectrum cellular, microcellular operation in col. 1, lines 9-14; col. 4, lines 38-56; including the narrow band FM radio signal), for a vehicle comprising a narrow band receiver (Fig. 2; the range and mobility, for mobile vehicle communication in col. 4, lines 38-56), an input signal processor connected to the narrow band receiver, (the signal processing circuits, narrow band demodulator 213, is connected to the receiving circuit tuned IF amplifier of the receiver via mode switch 104, Fig. 2), the input processor (transmit information processing 101, Fig. 1) operable to generate an output spread signal in response to an input communication signal (the transmit information to transmit information processing 101 in Fig. 1, for geneatate spread spectrum output signal via spread spectrum modulator 111, for transmitting via antenna 109 in Fig. 1), an output signal processor operable to generate an output communication signal (information output processor 219 for processing for providing communication output information signal for narrow band, spread spectrum, demodulated signal. in col. 7, line 46 to col. 8, line 8). Dixon teaches the output processor, information processing 219, is connected to the input signal processor, such as narrow band demodulator 213 and spread spectrum demodulator 217).

Dixon fails to teach the output processor operable to generating output communication signal in response to the spectrum-like signal. Nakamura teaches re-spreader 204 (Fig. 1) to create interference replica, spectrum-like signal [0080], the output communication signal in response to at least one of the spread spectrum-like signal (the receive demodulator 400 in Fig. 3, for decoding the user data of the spectrum-like signal, utilizing demodulator 400 in [0090]). Nakamura teaches the improved efficient method for reducing interference signal by shortening the delay time in the interference canceller with accuracy [0034-0037]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon with Nakamura's re-spreading with minimum spreading factor such that receiver could reduce the interference accurately.

Regarding **claim 14**, Nakamura teaches the input signal processor comprises spreader (re-spreader 204) connected to the narrow band receiver and the output signal processor (the re-spreader 204 is connected to receiver 100 via attnenuator 203, demodulator 202, despreader 201; and re-speader 204 is connected to the output processor 400 in Fig. 1), the spreader to spread the narrow band signal in response to a PN sequence provided by the PN generator (re-spreader 204, Fig. 1; to create interference replica, [0080], the spreading received user data and control data with spreading code Cdp-dch, Cdppcch in [0086], for canceling, subtracting, interference [0001, abstract], Fig. 16D, to reduce the interference from other users 2-3 for narrow band user 1's signal of the narrow band modulated signal NM, based on the ratio of the chip-period of spreading code T/Tc, to reduce the noise floor in Fig. 16A-16D, [0013]).

Regarding **claim 15**, Dixon taught the output processor comprising despreader (215), is connected to the input signal processor (tuned IF amplifier 211, converter 209, 105) for despreading spread spectrum signal. Nakamura teaches the despreader to despread the spread spectrum like signal in response to the PN sequence provided by Pn generator (the 151a-1, 151-a-2 in Fig. 23 for despreading with spreading code generator 151 a-4, [0034]).

Regarding **claim 16**, Dixson teaches the despreader comprising a first despreader in response to the spread spectrum signal (215, Fig. 2). Nakamura teaches the second despreader in receive demodulator 400.

Regarding **claim 22**, Dixson taught the input and output spread spectrum signals comprising CDMA signals (the transmitter in Fig. 1 for transmitting output spread spectrum signal from signal generated in spread spectrum modulator 111, and the receiver for receiving the input spread spectrum signal in Fig. 2 for dispreading at 215, 217, and CDMA signal is one of the spread spectrum signal in the spread spectrum communication system.

Regarding **claim 26**, Dixon teaches a method for integrating narrow band and spread spectrum signals in a vehicle system as shown in claim 1 above, having a narrow band signal via dual mode antenna 109. Dixon fails to teach generating a spread spectrum-like signal in response to narrow band signal and generating output communication signal in response to the spread spectrum like signal. Nakamura teaches the respreading 204 for generating spread spectrum-like signal in response to user 1' narrow band signal for spreading user 2-3's narrow band signal, for reducing signal to interference ratio based on the spreading factor T/Tc, as shown in claim 1. Nakamura teaches the output communication signal in response to at least one of the spread spectrum-like signal (the receive demodulator 400 in Fig. 3, for decoding

the user data of the spectrum-like signal, utilizing demodulator 400 in [0090]). Nakamura teaches the improved efficient method for reducing interference signal by shortening the delay time in the interference canceller with accuracy [0034-0037]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon with Nakamura's re-spreading with minimum spreading factor such that receiver could reduce the interference accurately.

2. Claims 3, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Nakamura, as applied to claim 1 above, and further in view of Benedetto et al. (US 4,591,661).

Regarding **claim 3,** Dixon and Nakamura fail to teach the antenna system comprising a first antenna responsive to narrow band signal, and the second antenna responsive to spread spectrum signal. Benedetto et al. (Benedetto) teaches this claimed features, the first antenna 80 for receiving narrow band FM signal in Fig. 4, the second receiving antenna 20 and transmitting antenna 26 for cordless telephone spread spectrum signal. The cordless telephone is obvious a CDMA spread spectrum communication as of today technology. Benedetto teaches a portable cordless telephone transceiver having talk/off control switch for switching off FM music when accepting/generating a cordless telephone call (abstract, Fig. 4, col. 2, line 57 to col. 3, line 55). Benedetto teaches the efficient method for placing, answering, cordless telephone call while listening to the FM music by sequelch the FM music audio in order to accepting, placing, a telephone call (col. 1, lines 26-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify

Dixon above with Benedetto's integrated FM radio with cordless telephone with switch off control of the FM music signal, such that the system could efficiently answering the telephone call by utilizing the switch off function for answering the telephone call.

Regarding **claim 19**, Dixon taught above the demodulation narrow band and spread spectrum signal for usage at destination (col. 8, lines 5-9). Benedetto taught portable cordless phone in Fig. 2 is obviously having the a speaker for listening to spread spectrum cordless telephone call, with the plug in headset 60 (Fig. 3) which has the a second ear phone speaker for listening to the narrow band FM stereo signal.

3. Claims 4-6, 9-10, 17-18, 20-21, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Nakamura, as applied to claim 1 above, and further in view of Baranowski et al. (US 2004/0029,541 A1).

   Regarding **claim 4,** Dixon and Nakamura fail to teach the narrow band signal comprising at least on of the AM signal and a FM signal. However, Baranowski teaches the narrow band signal comprising at least on of the AM signal and a FM signal, having frequency range of 530 KHz to 1700 KHZ for AM band and 87.5-107.9 MHz for FM band signals [0019-0021], the AM/FM radio having AM demodulator 116 and FM demodulator 117, which are integrated into the wireless telephone (abstract, Fig. 1, [0001, 0008-0011]). Baranowski teaches the CDMA IC 121 for spreading, despreading, CDMA signal for providing transmit and receive signals for the wireless telephone call activity [0045, 0036, 0019], the phone unit 100 for communicating with headset 200, 300, for relaying wireless telephone call to the headset 200, 300 (Fig. 2-3, [0011]), the controlling of the radio music audio on/off for

handing telephone call [0049-0058]. Baranowski teaches the improved method for handling telephone call with headset, having the convenient method for managing the telephone call and radio music signal [0007-0008]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon above with Baranowski's AM, FM, narrow band signal and wireless telephone signal for headset, such that the user could be efficiently, conveniently, answering the incoming call by switch off headset AM, FM, radio signal.

Regarding **claim 5**, Baranowski taught in claim 4 above the AM signal comprising a frequency range of about KHz to 1700 KHZ for AM band [0019-0020], the FM signal frequency range of about 87.5-107.9 MHz for FM band signals [0019-0021].

Regarding **claim 6**, Baranowski taught the input spread spectrum signal comprising a CDMA signal (the CDMA IC 121 in Fig. 1, [0036, 0045]).

Regarding **claim 9**, Baranowski teaches the output communication signal comprising first output audio signal and a second output audio signal , the first output audio response to spread spectrum, the second output audio response to the narrow band signal (the first wireless spread spectrum audio output signal for the wireless telephone call in [0036], the FM stereo audio, for the second narrow band audio output signal in [0035].

Regarding **claim 10**, Baranowski taught in claim 1 the second output audio signal (FM radio music output) is deactivated (radio off in [0049-0058]) in response to the first output audio signal (voice of the wireless telephone call).

Regarding **claim 17**, Baranowski taught the input device (microphone 301) is connected to

the input signal processor (the input processing components, 302, 303, 304, 306, for transmitting to phone unit 100 via antenna 306), an output device (the stereo output signal L, R, from decoder 209) is connected to the output signal processor (the processing components 205, 204, 206, 203, 202, antenna 201, for receiving 400 MHz signal which is communicated from phone unit 100, for receiving either telephone call or FM radio signal).

Regarding **claim 18**, Baranowski taught the input device and output device comprise a portable device (the portable headset 200, the wireless portable microphone 300 in Fig. 2-3).

Regarding **claim 20**, Baranowski teaches the narrow band signal comprising at least on of the AM signal and a FM signal [0019-0020].

Regarding **claim 21**, Baranowski taught in claim 4 above the AM signal comprising a frequency range of about KHz to 1700 KHZ for AM band [0019-0020], the FM signal frequency range of about 87.5-107.9 MHz for FM band signals [0019-0021].

Regarding **claim 27**, Baranowski teaches the output communication signal comprising first output audio signal and a second output audio signal , the first output audio response to spread spectrum, the second output audio response to the narrow band signal (the first wireless spread spectrum audio output signal for the wireless telephone call in [0036], the FM stereo audio, for the second narrow band audio output signal in [0035].

Regarding **claim 28**, Dixon taught in claim 1 the receiving input spread spectrum signal for the dual band transceiver (Fig. 2), and generating the output communication signal in response to the input spread spectrum signal (the demodulating of spread spectrum utilizing despreader 215, 217, the information processing 219 for providing output communication signal, Fig. 2).

Regarding **claim 29**, Baranowski taught the deactivating generation of output communication signal in response to the spread spectrum signal (the radio off for receiving wireless, spread spectrum telephone call [0049-0058]).

Regarding **claim 30**, Dixon taught the generating an output spread spectrum signal in response to the input signal (the transmit information signal input to transmit information processing 101 for transmitting spread spectrum signal via spread spectrum modulator 111 and antenna 109, Fig. 3).

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Nakamura, Benedetto, Baranowski, as applied to claim 6 above, and further in view of Higuchi (US 2003/0199,261 A1).

Regarding **claim 7,** Dixon above fails to teach the input spread spectrum signal comprises a 800 MHz. Higuchi teaches the multiband radio transceiver terminal having spread spectrum CDMA communication [0015], and the CDMA communication system utilizes the spread spectrum technology. Higuchi teaches a portable wireless terminal can efficiently access multiple frequency band in the CDMA technology with less cost [0006-0007] without utilizing steep filtering characteristic of the SAW filter. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon above with Huguchi's method of multiple frequency band tuning of different CDMA frequency, such that the wireless telephone can easily access the CDMA frequencies with low cost.

Regarding **claim 8**, Higuchi taught the spread spectrum signal comprising a frequency of 1900 MHz [0015].

5. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Nakamura, as applied to claim 22, and further in view of Higuchi-'261 A1.

Regarding **claim 23,** Dixon above fails to teach the input spread spectrum signal comprises a 800 MHz. Higuchi teaches the multiband radio transceiver terminal having spread spectrum CDMA communication [0015], and the CDMA communication system utilizes the spread spectrum technology. Higuchi teaches a portable wireless terminal can efficiently access multiple frequency band in the CDMA technology with less cost [0006-0007] without utilizing steep filtering characteristic of the SAW filter. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon above with Huguchi's method of multiple frequency band tuning of different CDMA frequency, such that the wireless telephone can easily access the CDMA frequencies with low cost.

Regarding **claim 24**, Higuchi taught the spread spectrum signal comprising a frequency of 1900 MHz [0015].

6. Claims 12, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon in view of Nakamura, as applied to claim 1 above, and further in view of Collier et al. (US 5,073,899).

Regarding **claim 12,** Dixon and Nakamura fail to teach the output communication signal comprising at least one of an audio signal and a data signal. However, collier teaches this claimed features for providing speech audio output and data output (Fig. 3, abstract, col. 3, lines 29-55) for the receiving of FM modulated signal and the spread spectrum signal having

the FM demodulator 34 and spread spectrum demodulation multiplier 36, PN sequence source 40, low pass filter 42, code tracking 45 (col. 1, lines 4 to col. 4, line 13). Collier teaches the improved technique for transmitting a spread spectrum signal combined with a FM modulated signal together, to a receiver for a simple demodulation without interfered by the transmitted data noise (col. 2, line 4-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Dixon above with Collier's technique for transmitting both FM signal and spread spectrum signal for demodulation to to provide audio and data output, such that the receiver could be upgraded for providing both audio and data output.

Regarding **claim 25**, Collier taught in claim 12 above, the output communication signal comprising at leas one of an audio and data signal.

Claims Objection

7. Claims 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach the claimed features for the input processor operable to generate output spread spectrum signal in response to an input communication signal, an output signal processor connected to an antenna system the output signal processor operable to generate the output communication signal in response to input spread spectrum signal, a narrow band receiver operable to provide narrow band signal to input processor, the signal processor is operable to generate spread spectrum like signal in response to narrow band signal, and output processor is operable to generate the output communication signal in response to the spread spectrum like signal.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

   A. US 4,941,150, July 1990, Iwasaki teaches the spread spectrum communication system for receiving clock signal to be used by PN generator 17b for despeading the received AM, FM signal (abstract, Fig. 3, col. 6, lines 36-60).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385.

   Any response to this action should be mailed to:

   Commissioner of Patents and Trademarks

   Washington, D.C. 20231

   or faxed to: (703) 872-9306 (for Technology Center 2600 only)

   Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

   Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C.C.

July 29, 2004.

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600